

Sintesis dan karakterisasi hidroksiapatit dengan metode hidrotermal = Synthesis and characterization of hydroxyapatite by hydrothermal method

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Abstrak

[ABSTRAK

Hidroksiapatit (HA) mempunyai peran penting dalam bidang medis karena komposisi kimia dan strukturnya yang mirip dengan tulang manusia. Material ini disintesis melalui metode hidrotermal dengan prekursor $\text{Ca}(\text{NO}_3)_2$, CaO dan NH_3PO_4 . Variasi temperatur hidrotermal pada $150\text{ }^\circ\text{C}$ dan $300\text{ }^\circ\text{C}$, temperatur sintering pada $900\text{ }^\circ\text{C}$ selama 3 jam. Endapan yang diperoleh diuji dengan XRD dan SEM-EDX. Morfologi partikel hasil karakterisasi SEM berbentuk batangan memanjang dan melingkar teraglomerasi dan hasil uji EDX menunjukkan rasio Ca/P yang lebih besar dari 1.67. Uji XRD menunjukkan adanya fasa kalsium difosfat, fluorapatit dan apatit karbonat tipe- A di dalam endapan yang meningkatkan rasio Ca/P.

ABSTRACT

Hydroxyapatite (HA) possesses significant role in medical application due to its similarity in chemical and structure to human bones. This material was synthesized through hydrothermal method using $\text{Ca}(\text{NO}_3)_2$, CaO and NH_3PO_4 . Hydrothermal temperature varied on $150\text{ }^\circ\text{C}$ and $300\text{ }^\circ\text{C}$, sintering temperature on $900\text{ }^\circ\text{C}$ for 3 hours. Sample was characterization by XRD and SEM-EDX.

Morphology observed by SEM is agglomerated round- spherical- shape particle with Ca/P ratio more than 1.67 measured by EDX. Calcium diphosphate, fluorapatite and carbonated type- A presence is observed by XRD.

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